



NASA/Stennis Space Center Learjet 23 Fact Sheet

The prototype of the Learjet Model 23 made aviation history when it took to the air 32 years ago. Nearly 17 years ago, the John C. Stennis Space Center (SSC) in South Mississippi acquired one of the first models of these jets. There were about 100 of the Model 23 built, and less than 30 remain in use today.

The main purpose of [SSC's Learjet NASA 933](#) is to support NASA's Commercial Remote Sensing Program (CRSP) at Stennis as an airborne remote sensing testbed. To fulfill this mission, the Learjet collects airborne imagery from a variety of NASA and prototypical, or first generation, commercial imaging systems at altitudes ranging from 3,000 to 41,000 feet.

The aircraft is equipped to fly the Airborne Terrestrial Applications Sensor (ATLAS) and the Calibrated Airborne Multispectral Scanner (CAMS). Both the ATLAS and the CAMS are NASA-developed scanning systems that collect imagery across the spectrum, from the visible into the thermal infrared region. NASA 933 is also equipped with a Zeiss RMK A 15/23 Aerial Survey Camera that simultaneously collects conventional aerial photography.

ATLAS/CAMS images and aerial photography support applications development, satellite imagery simulation and prototypical product demonstration for a variety of CRSP remote sensing projects with commercial and NASA partners.

In 1996, the Learjet flew to Fort Hall, Idaho, to acquire CAMS imagery over the Fort Hall Indian Reservation of the Shoshone-Bannock Tribe. The Learjet acquired imagery over the entire reservation in four days more than 544,000 acres. The images will be used in a joint NASA/Shoshone-Bannock project to demonstrate the use of remote sensing technology for cultural resource management on the reservation.

In 1995, CRSP provided the Environmental Protection Agency with ATLAS data collected by the Learjet over a study site on Maryland's eastern shore. The imagery was utilized, along with other data sources, to outline the boundaries and chart the abundance of forested wetlands in Wicomico County as part of the Interagency Forested Wetlands Study to improve wetlands mapping techniques.

In the summer of 1994, the Learjet traveled to Huntsville, Ala., to collect imagery for scientists at NASA's Marshall Space Flight Center. The ATLAS acquired an extensive set of imagery over Huntsville during the afternoon and in the predawn hours. Marshall scientists were using the thermal imagery

acquired from the Learjet to map urban heat islands.

Because of its extended range and altitude, NASA 933 is an excellent testbed for data collection from prototype remote sensing systems. Recently, the aircraft was used to collect data using the TRW Imaging Spectrometer (TRWIS-B), which records digital images in many very narrow spectral bands. The Learjet is scheduled to fly the TRWIS-III, a prototype for the Hyperspectral Imager. It will launch on NASA's Small Spacecraft Technology Initiative (SSTI) Lewis satellite, which also records in narrow bands to detect previously undetectable characteristics of ground features. The NASA Learjet has been used to simulate imagery from the SSTI Clark satellite, as well as other commercial satellites scheduled for launch over the next five years.

The Learjet also supports many other scientific and commercial projects, which include environmental monitoring, land use assessment, archaeology and preservation of historical sites. NASA 933 has performed more than 650 data acquisition missions since coming to SSC. The Learjet has flown missions throughout the United States as well as in Canada, Mexico, Puerto Rico, Central America and South America.

For more information about Stennis Space Center's Learjet, contact the SSC Commercial Remote Sensing Program office at (601) 688-2042, or access the CRSP home page on the World Wide Web at <http://crsphone.ssc.nasa.gov> (no quotes).

NASA Stennis Space Center
Public Affairs Office
Stennis Space Center, MS 39529
(601) 688-3341
pao@ssc.nasa.gov

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